CHAPTER 2

DESCRIPTION OF THE NORTH FORK FORKED DEER RIVER WATERSHED

2.1. BACKGROUND. The North Fork Forked Deer Watershed contains streams with increased gradient, generally sandy substrates, and distinctive faunal characteristics. The Forked Deer river system has wide floodplains. Most of its streams have been channelized.

Waterfowl, raptors, and migratory songbirds are relatively abundant in the region. The watershed supports cotton and grain production. Wildlife Management Areas attract duck hunters.

This Chapter describes the location and characteristics of the North Fork Forked Deer River Watershed.

2.2. DESCRIPTION OF THE WATERSHED.

2.2.A. General Location. The North Fork Forked Deer River Watershed is located in West Tennessee and includes parts of Carroll, Crockett, Dyer, Gibson, Henderson, and Madison Counties.

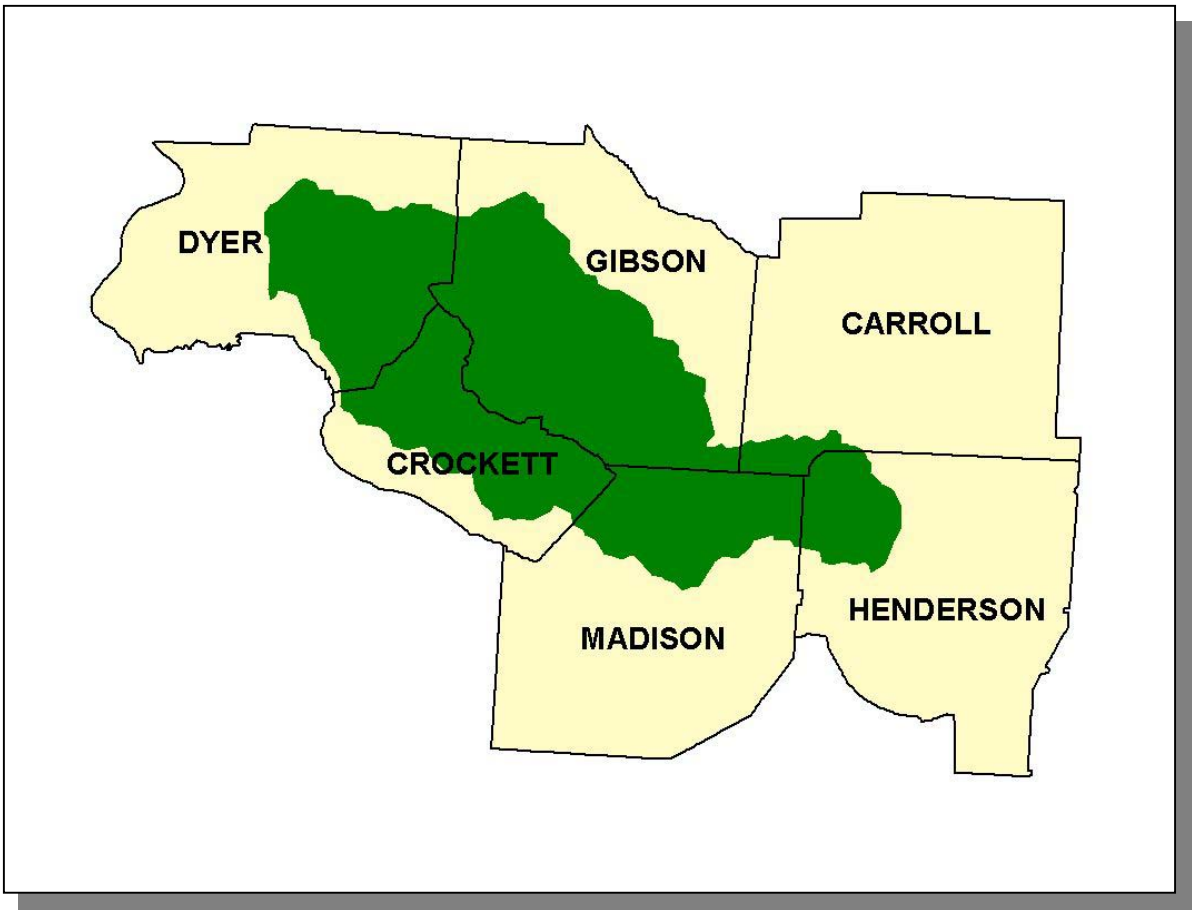

Figure 2-1. General Location of the North Fork Forked Deer River Watershed.

COUNTY	% OF WATERSHED IN EACH COUNTY
Henderson	47.5
Madison	27.6
Gibson	24.9
Dyer	19.8
Crockett	9.8
Carroll	7.4

Table 2-1. The North Fork Forked Deer River Watershed Includes Parts of Six West Tennessee Counties.

2.2.B. Population Density Centers. Two interstates (I-40, I-155) and six state highways serve the major communities in the North Fork Forked Deer River Watershed.

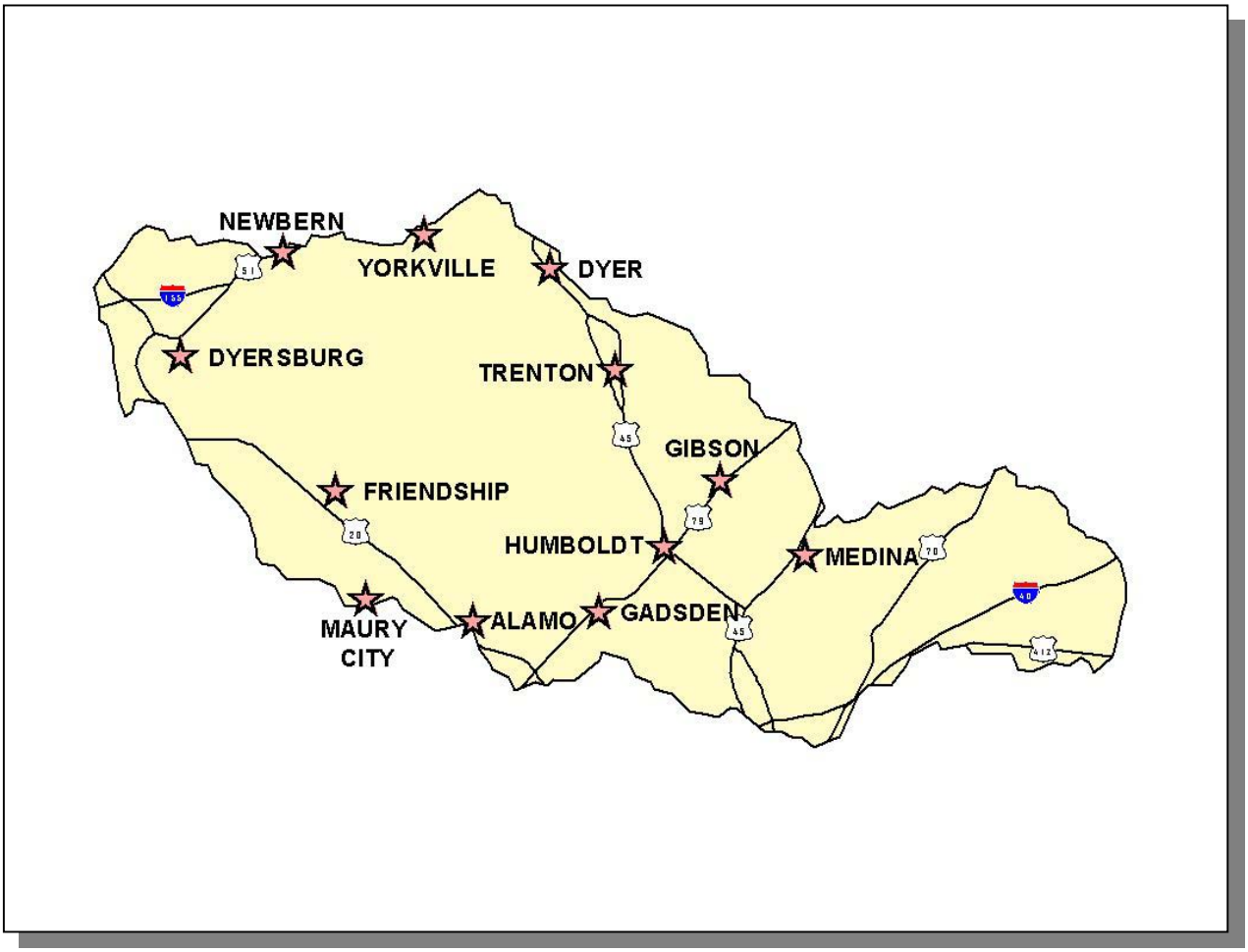

Figure 2-2. Municipalities and Roads in the North Fork Forked Deer River Watershed.

MUNICIPALITY	POPULATION	COUNTY
Alamo*	2,396	Crockett
Dyer	2,239	Gibson
Dyersburg*	18,658	Dyer
Friendship	486	Crockett
Gadsden	540	Crockett
Gibson	365	Gibson
Humboldt	9,672	Gibson
Maury City	816	Crockett
Medina	702	Gibson
Newbern	2,868	Dyer
Trenton*	4,646	Gibson
Yorkville	370	Gibson

Table 2-2. Municipalities in the North Fork Forked Deer River Watershed. *Population based on 1996 census (Tennessee Blue Book). Asterisk (*) indicates county seat.*

2.3. GENERAL HYDROLOGIC DESCRIPTION.

2.3.A. Hydrology. The North Fork Forked Deer River Watershed, designated the Hydrologic Unit Code 08010204 by the USGS, is approximately 962 square miles, includes the Middle Fork Forked Deer River, and drains to the Forked Deer River.

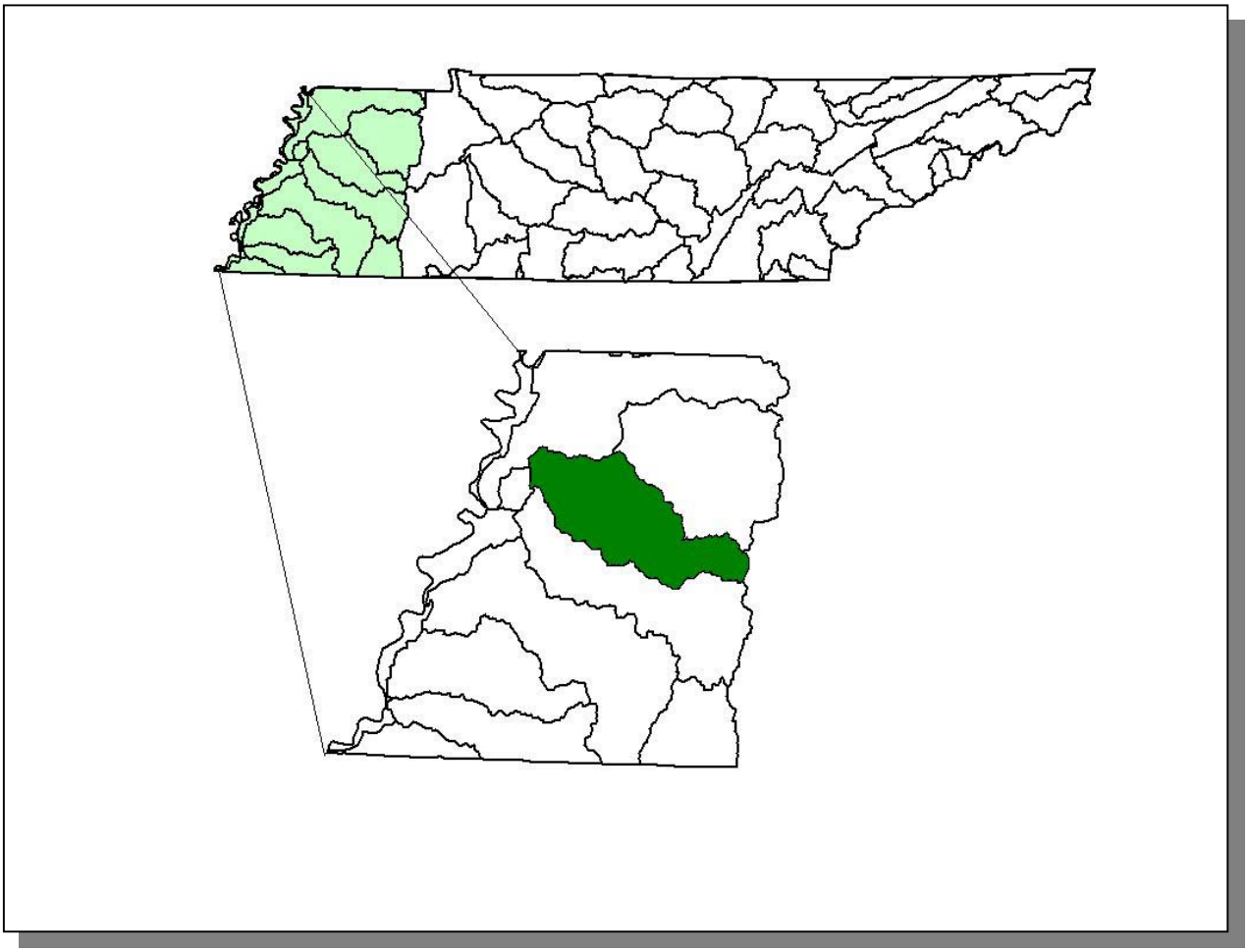

Figure 2-3. The North Fork Forked Deer River Watershed is Part of the Mississippi River Basin.

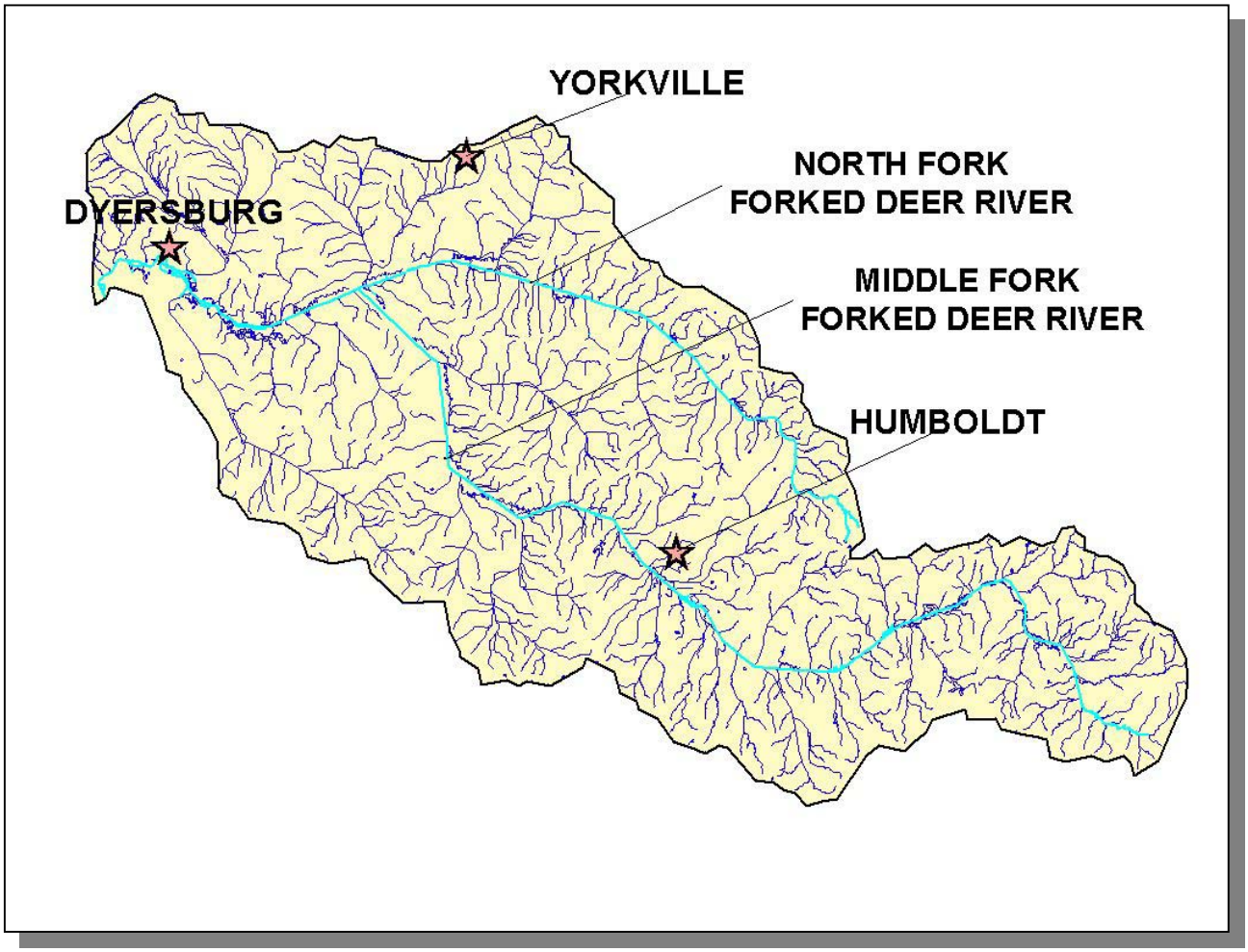

Figure 2-4. Hydrology in the North Fork Forked Deer River Watershed. *There are 1,314 stream miles and 655 lake acres recorded in River Reach File 3 in the North Fork Forked Deer River Watershed. Locations of North Fork Forked Deer River, Middle Fork Forked Deer River, and the cities of Dyersburg, Humboldt, and Yorkville are shown for reference.*

2.3.B. Dams. There are 57 dams inventoried by TDEC Division of Water Supply in the North Fork Forked Deer River Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

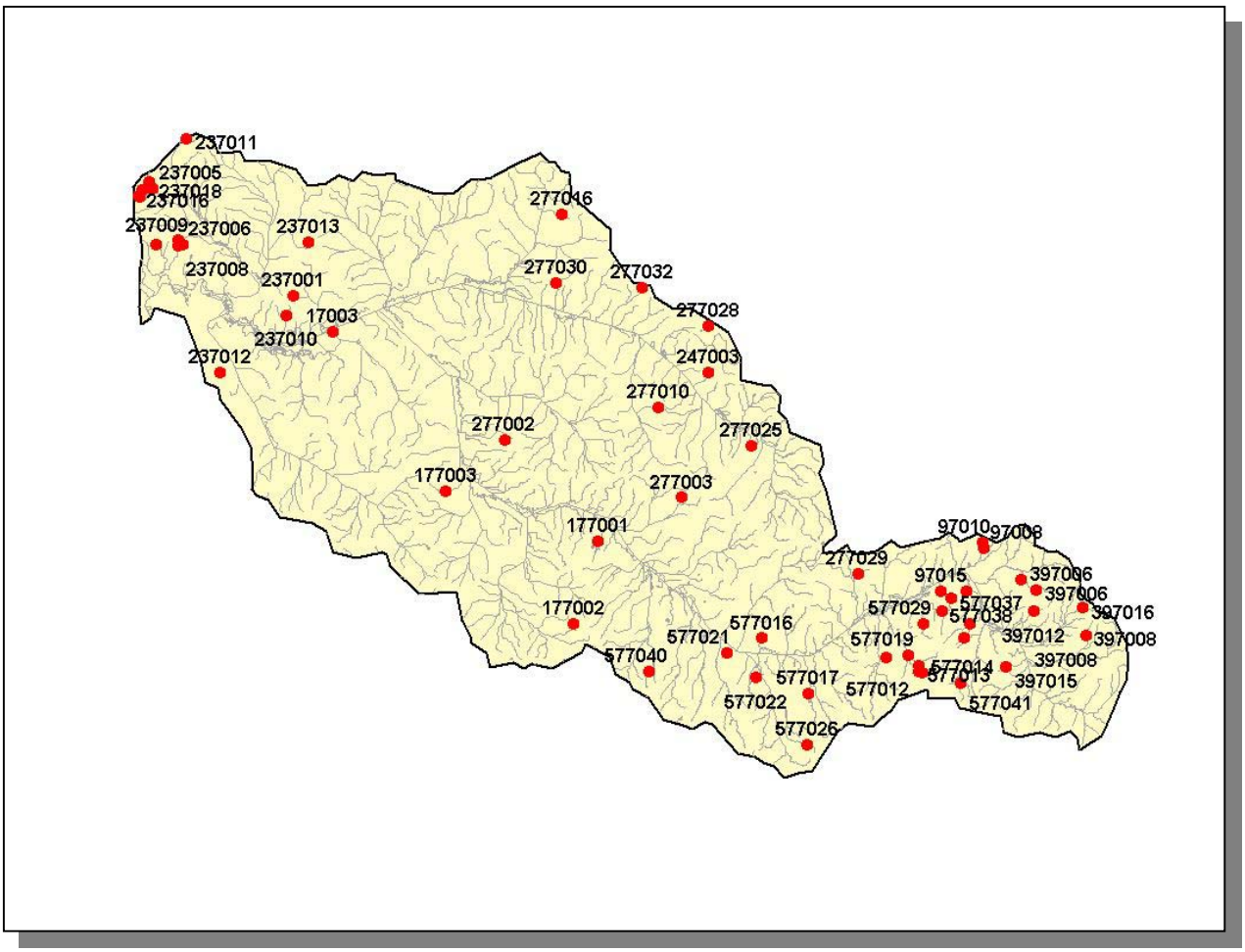

Figure 2-5. Location of Inventoried Dams in the North Fork Forked Deer River Watershed.
More information is provided in NFFD-Appendix II and on the TDEC homepage at:
http://gwidc.gwi.memphis.edu/website/dams/viewer.htm

2.4. LAND USE. Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 1992 Multi-Resolution Land Cover (MRLC) satellite imagery.

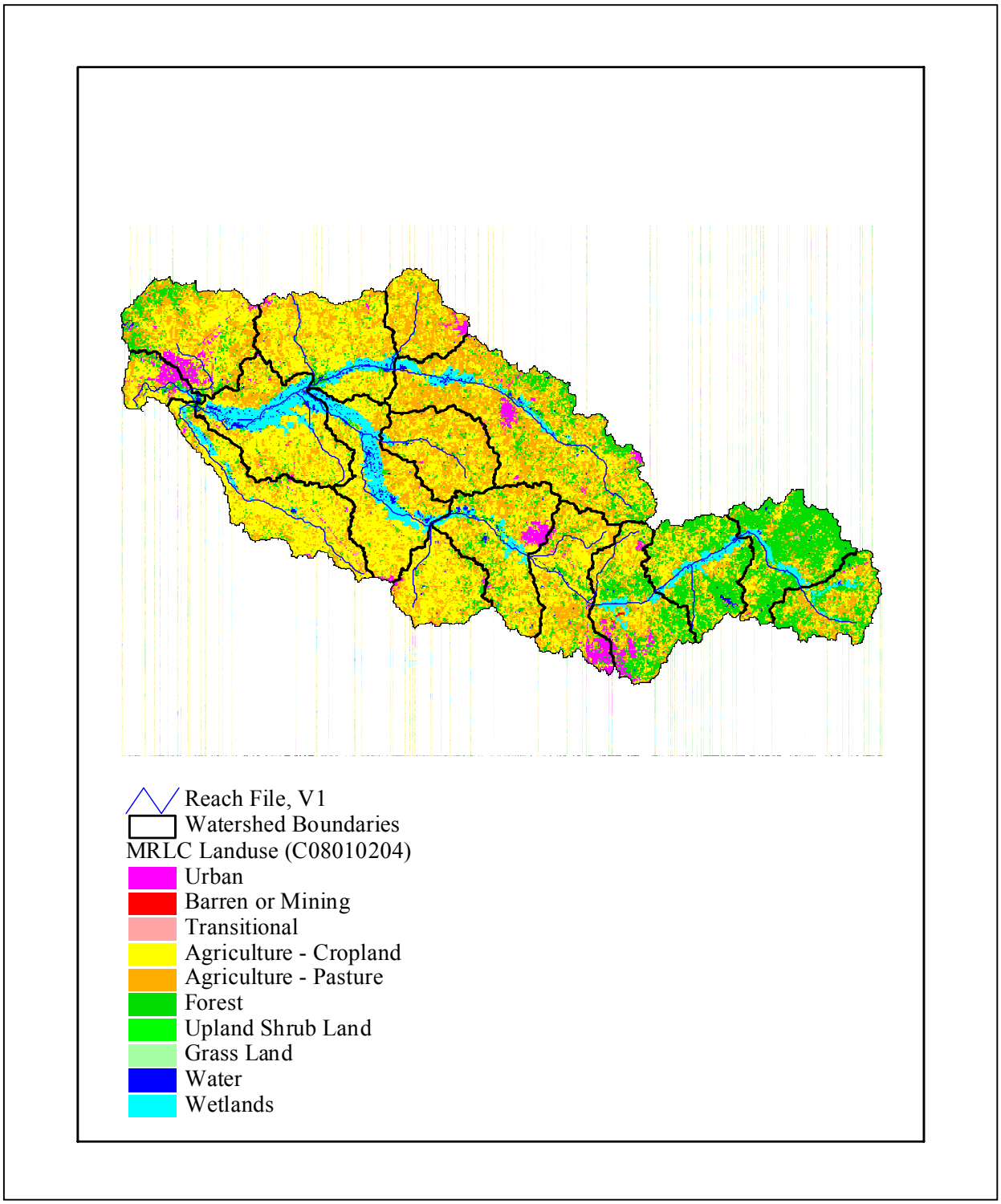

Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery.

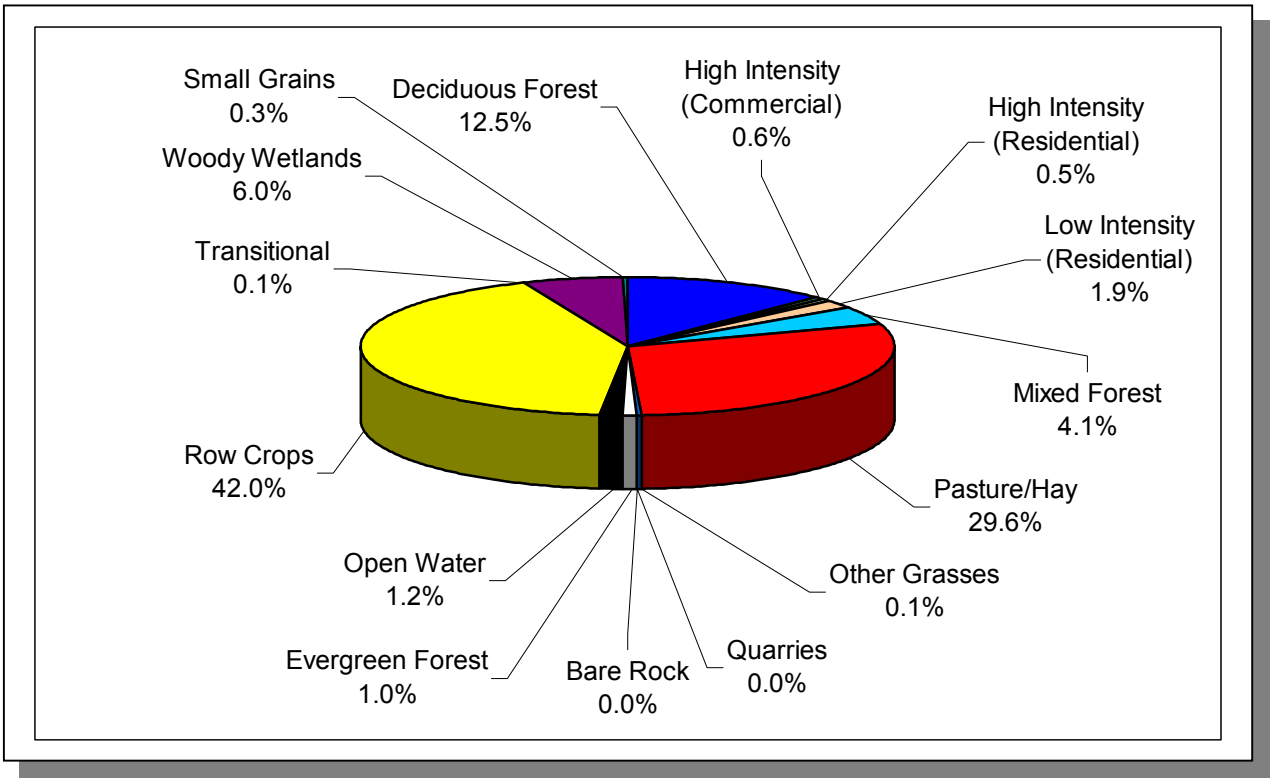

Figure 2-7. Land Use Distribution in the North Fork Forked Deer River Watershed. *More information is provided in NFFD-Appendix II.*

2.5. ECOREGIONS AND REFERENCE STREAMS. Ecoregions are defined as relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies include the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

There are eight Level III Ecoregions and twenty-five Level IV subecoregions in Tennessee. The North Fork Forked Deer River Watershed lies within 3 Level III ecoregions (Southern Plains, Mississippi Alluvial Plain, Mississippi Valley Loess Plain) and contains 4 Level IV subecoregions (Griffen, Omernik, Azavedo, 1997):

- The Southeastern Plains and Hills (65e) contain several north-south trending bands of sand and clay formations. Tertiary-age sand, clay, and lignite are to the west, and Cretaceous-age fine sand, fossiliferous micaceous sand, and silty clays are to the east. With elevations reaching over 650 feet, and more rolling topography and more relief than the Loess Plains (74b) to the west, streams have increased gradient, generally sandy substrates, and distinctive faunal characteristics for west Tennessee. The natural vegetation type is oak-hickory forest, grading into oak-hickory-pine to the south.

- The Northern Mississippi Alluvial Plain (73a) within Tennessee is a relatively flat region of Quaternary alluvial deposits of sand, silt, clay, and gravel. It is bounded distinctly on the east by the Bluff Hills (74a), and on the west by the Mississippi River. Average elevations are 200-300 feet with little relief. Most of the region is in cropland, with some areas of deciduous forest. Soybeans, cotton, corn, sorghum, and vegetables are the main crops. The natural vegetation consists of Southern floodplain forest (oak, tupelo, bald cypress). The two main distinctions in the Tennessee portion of the ecoregion are between areas of loamy, silty, and sandy soils with better drainage, and areas of more clayey soils of poor drainage that may contain wooded swamp-land and oxbow lakes. Waterfowl, raptors, and migratory songbirds are relatively abundant in the region.

- The Bluff Hills (74a) consist of sand, clay, silt, and lignite, and are capped by looess greater than 60 feet deep. The disjunct region in Tennessee encompasses those thick loess areas that are generally the steepest, most dissected, and forested. The carved loess has a mosaic of microenvironments, including dry slopes and ridges, moist slopes, ravines, bottomland areas, and small cypress swamps. While oak-hickory is the general forest type, some of the undisturbed bluff vegetation is rich in mesophytes, such as beech and sugar maple, with similarities to hardwood forests of eastern Tennessee. Smaller streams of the Bluff Hills have localized reaches of increased gradient and small areas of gravel substrate that create aquatic habitats that are distinct from those of the Loess Plains (74b) to the east. Unique, isolated fish assemblages more typical of upland habitats can be found in these stream reaches. Gravels are also exposed in places at the base of the bluffs.

- The Loess Plains (74b) are gently rolling, irregular plains, 250-500 feet in elevation, with loess up to 50 feet thick. The region is a productive agricultural area of soybeans, cotton, corn, milo, and sorghum crops, along with livestock and poultry. Soil erosion can be a problem on the steeper, upland Alfisol soils; bottom soils are mostly silty Entisols. Oak-hickory and southern floodplain forests are the natural vegetation types, although most of the forest cover has been removed for cropland. Some less-disturbed bottomland forest and cypress-gum swamp habitats still remain. Several large river systems with wide floodplains, the Obion, Forked Deer, Hatchie, Loosahatchie, and Wolf, cross the region. Streams are low-gradient and murky with silt and sand bottoms, and most have been channelized.

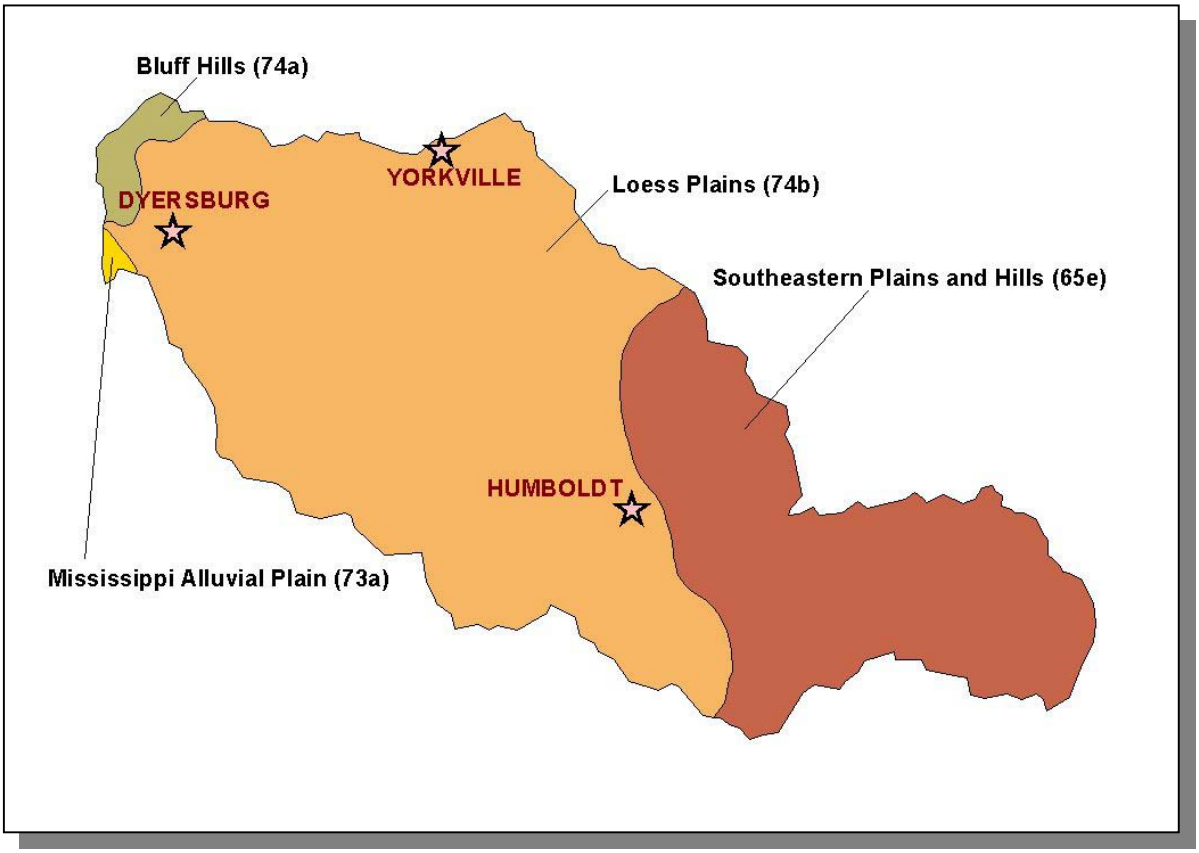

Figure 2-8. Level IV Ecoregions in the North Fork Forked Deer River Watershed. *Locations of Dyersburg, Humboldt, and Yorkville are shown for reference.*

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.

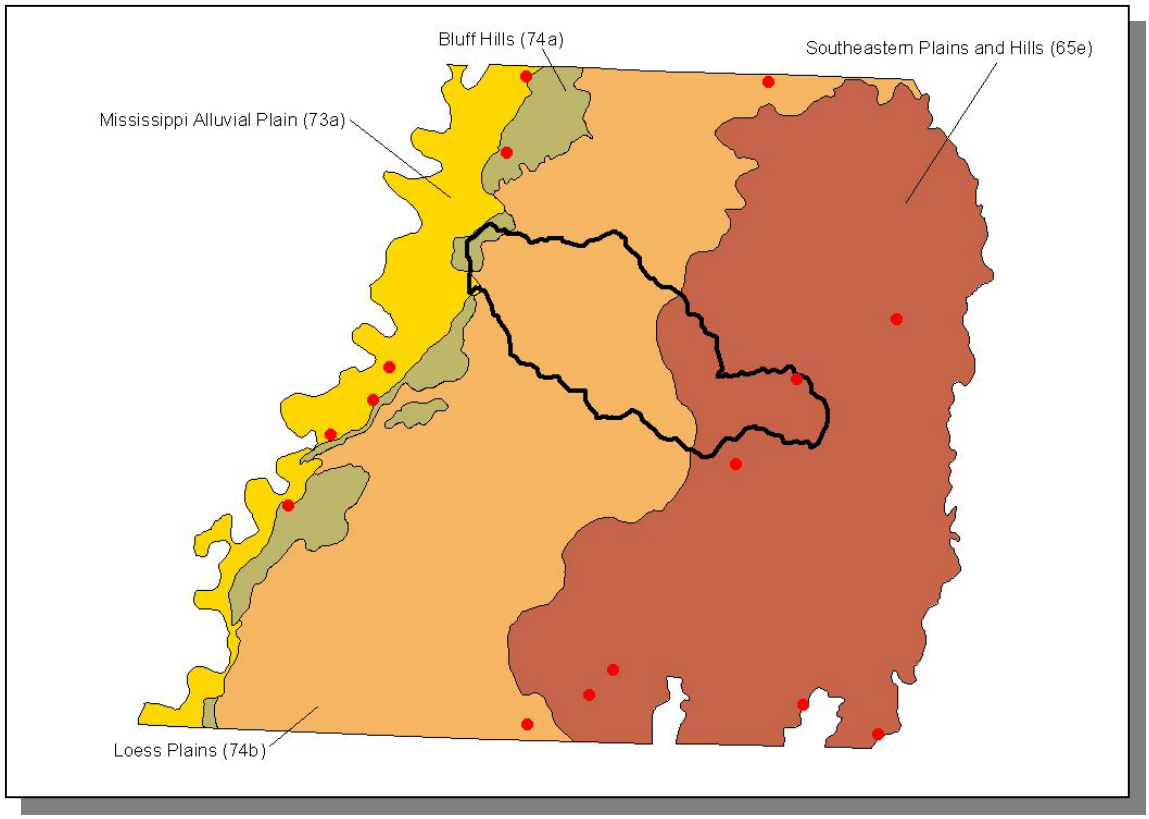

Figure 2-9. Ecoregion Monitoring Sites in Level IV Ecoregions 65e, 73a, 74a, and 74b. *The North Fork Forked Deer River Watershed is shown for reference. More information is provided in NFFD-Appendix II.*

2.6. NATURAL RESOURCES.

2.6.A. Rare Plants and Animals. The Heritage Program in the TDEC Division of Natural Heritage maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Crustaceans	0
Insects	0
Mussels	1
Snails	0
Amphibians	0
Birds	5
Fish	1
Mammals	0
Reptiles	0
Plants	4
Total	**11**

Table 2-3. There are 11 Rare Plant and Animal Species in the North Fork Forked Deer River Watershed.

In the North Fork Forked Deer River Watershed, there is one rare fish species, and one rare mussel species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
Etheostoma pyrrhogaster	Firebelly darter	MC	D
Pleurobema plenum	Rough pigtoe	LE	E

Table 2-4. Rare Aquatic Species in the North Fork Forked Deer River Watershed. *Federal Status: LE, Listed Endangered by the U.S. Fish and Wildlife Service; MC, Management Concern for the U.S. Fish and Wildlife Service. State Status: E, Listed Endangered by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency. More information may be found at http://www.state.tn.us/environment/nh/tnanimal.html.*

2.6.B. Wetlands. The Division of Natural Heritage maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at:

http://www.state.tn.us/environment/epo/wetlands/strategy.zip.

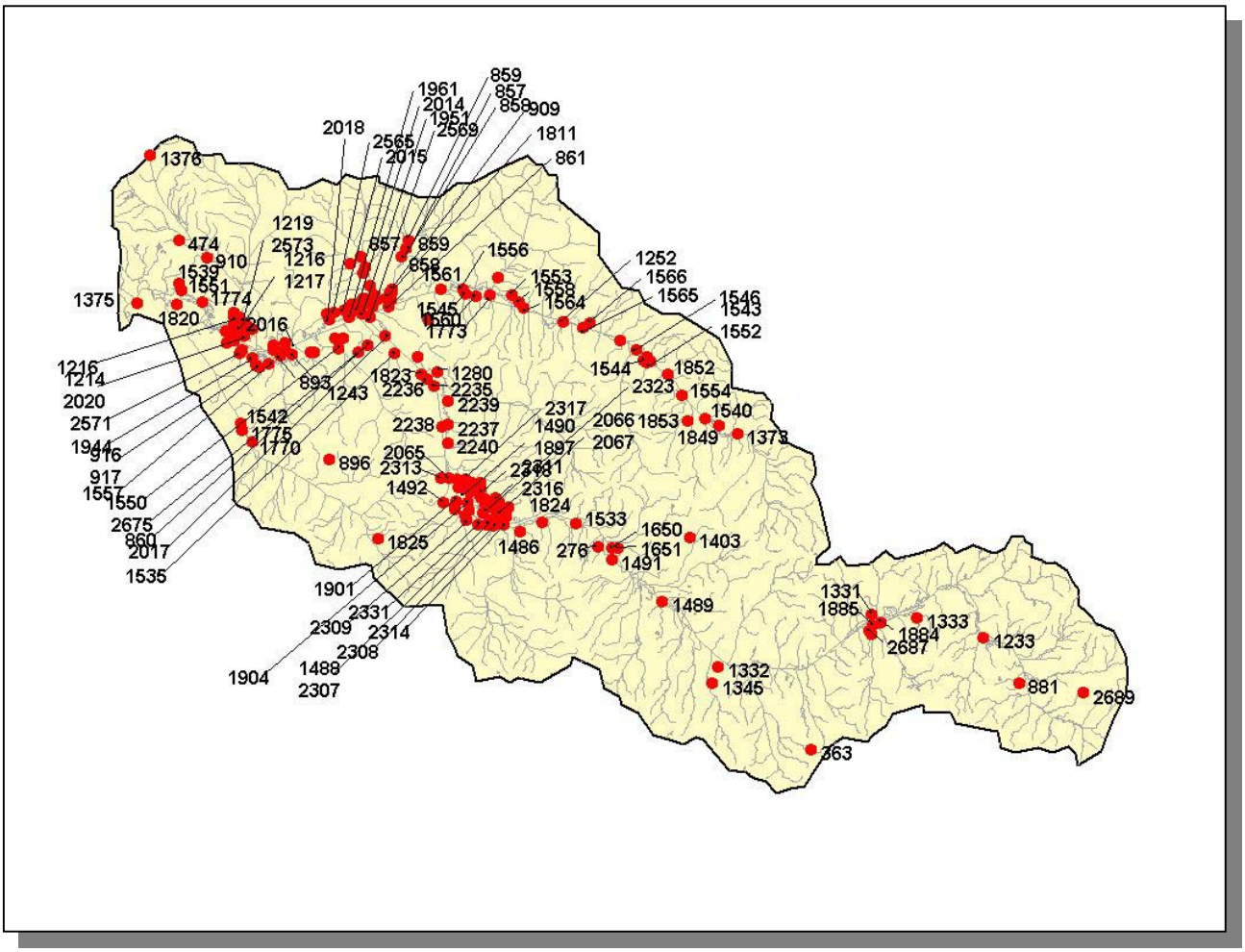

Figure 2-10. Location of Wetland Sites in TDEC Division of Natural Heritage Database in North Fork Forked Deer River Watershed. This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands in the watershed*. More information is provided in NFFD-Appendix II.*

2.7. CULTURAL RESOURCES.

2.7.A. Interpretive Areas. Some sites representative of the cultural heritage are under city protection:

- Okeena Park
- Wheler Park
- Evansville Park

In addition, many local interpretive areas are common, most notably, Humboldt Lake.

2.7.B. Wildlife Management Area. The Tennessee Wildlife Resources Agency manages Tigrett Wildlife Management Area and Horns Bluff Refuge.

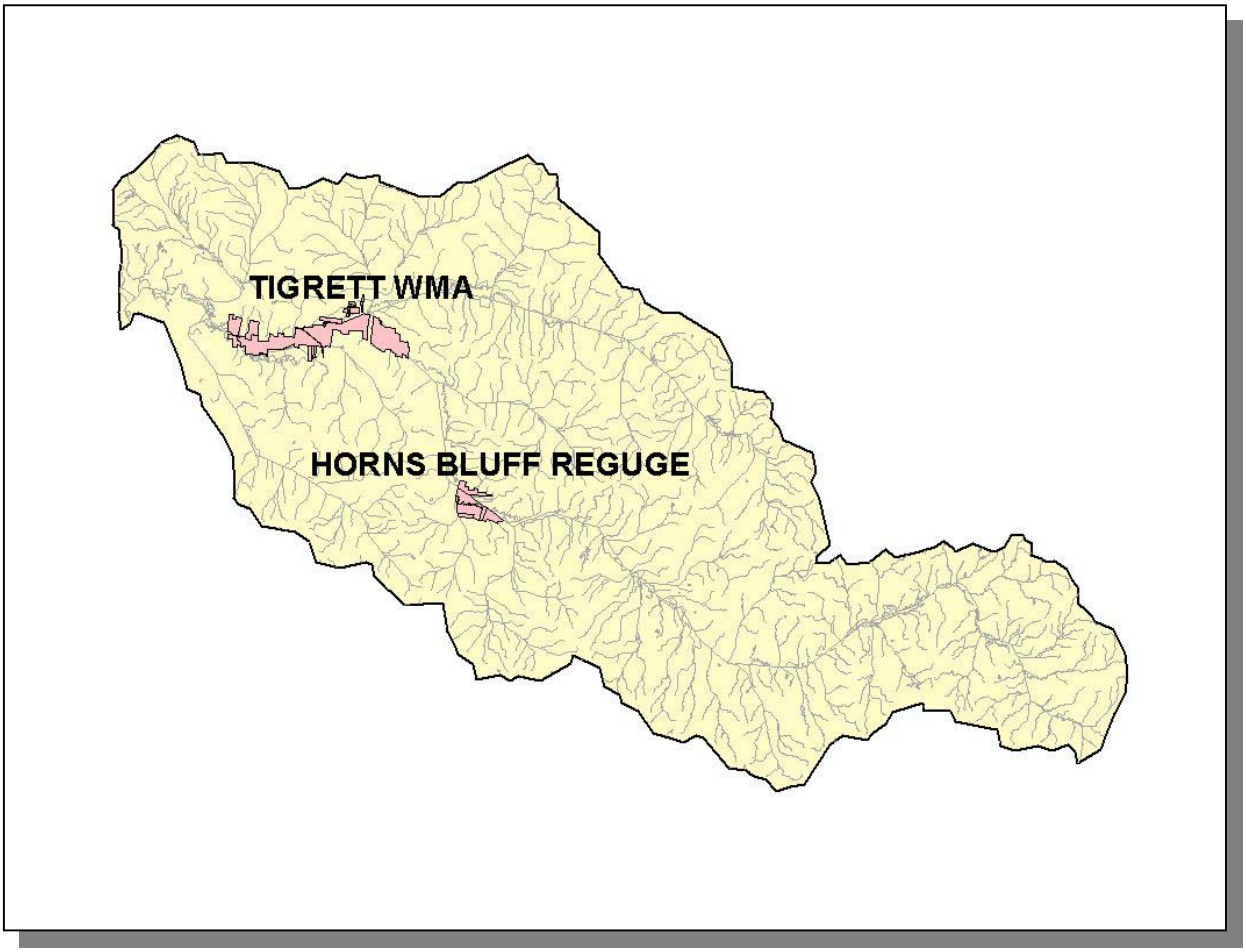

Figure 2-11. TWRA Manages Tigrett Wildlife Management Area and Horns Bluff Refuge in the North Fork Forked Deer River Watershed.

2.8. TENNESSEE RIVERS ASSESSMENT PROJECT.

The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

http://www.state.tn.us/environment/wpc/publications/riv/

STREAM	NSQ	RB	RF	STREAM	NSQ	RB	RF
Barnett Branch Middle Middle Fork Forked Deer	4			Light Creek	3		
Beech Creek	4			Mathers Creek	4		
Bethel Branch North Fork Forked deer	4			Middle Fork Forked Deer	2	2	3
Buck Creek (North)	3	3		Miller Creek	4		
Buck Creek (South)	4			Moize Creek	3		
Cane Creek	4			Mud Creek	2		
Cypress Creek	4		2,3	North Fork Forked Deer	3,4	2,3	2
Davis Creek	4			Odell Creek	4		
Deloach Creek	4			Oliver Branch North Fork	4		
Doakville Creek	4			Forked Deer	4		
Duffy Branch Middle Fork Forked Deer	4			Pond Creek	4	3	2
Dyer Creek	4			Reagan Creek	4		
Gilmer's Creek	3			Rice Creek	4		
Griffin Creek	4			Spring Creek	3,4		
Harris Creek	4			Stokes Creek	4		
Johnson Creek	4			Sugar Creek	4		
Jones Creek	3			Susan Branch Griffin Creek	4		
Lewis Creek	3,4		3	Turkey Creek	4		
Lewis Creek Drainage Ditch	4		3				

Table 2-5. Stream Scoring from the Tennessee Rivers Assessment Project.

Categories: NSQ, Natural and Scenic Qualities
RB, Recreational Boating
RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery
2. Regional Significance; Good Fishery
3. Local Significance; Fair Fishery
4. Not a significant Resource; Not Assessed